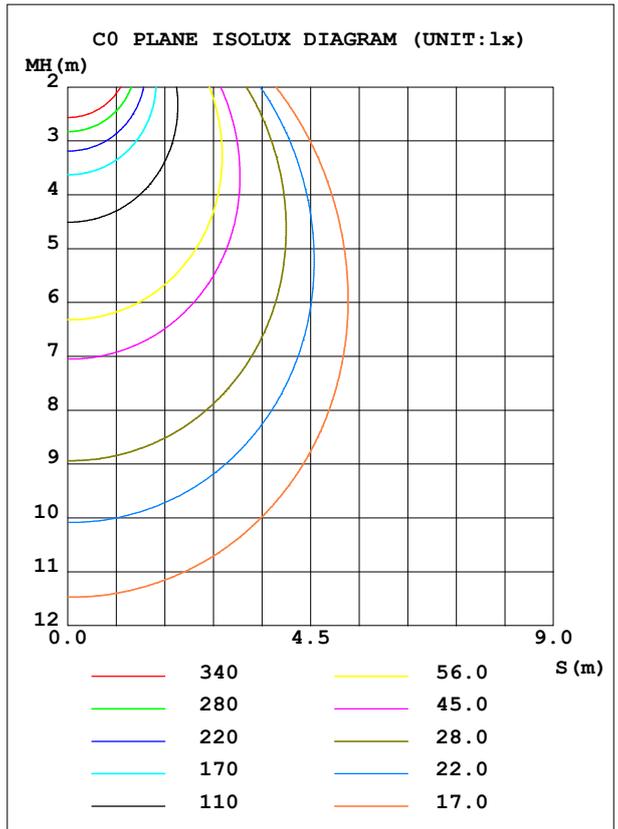
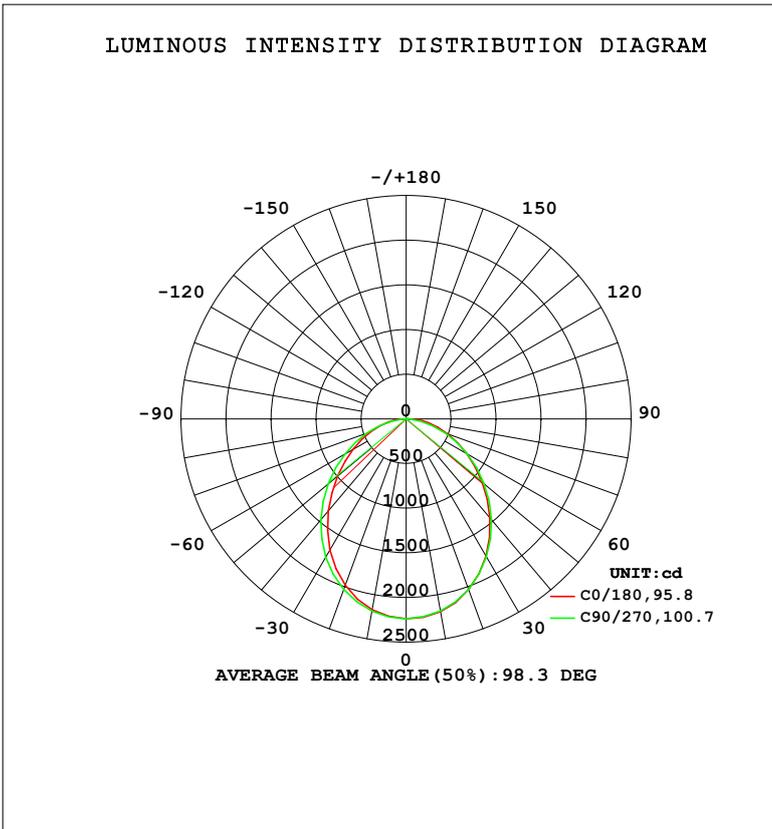


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz		
Lamp Flux:5582.96x1 lm		
NAME:	ASD-WRL-4A48AC	
MFR.:	ASD Lighting Corp	

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	ASD-WRL-4A48AC	Imax (cd)	2237	S/MH (C0/180)	1.14
NOMINAL POWER (W)	48	LOR (%)	100.0	S/MH (C90/270)	1.19
RATED VOLTAGE (V)	277	TOTAL FLUX (lm)	5583.0	η UP, DN (C0-180)	0.3, 50.2
NOMINAL FLUX (lm)	5582.96	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.2, 49.3
LAMPS INSIDE	1	η up (%)	0.5	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	η down (%)	99.5	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators: DAMIN
 Test Date: 2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity: 65.0%
 Test Distance: 26.000m [K=1.2780]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

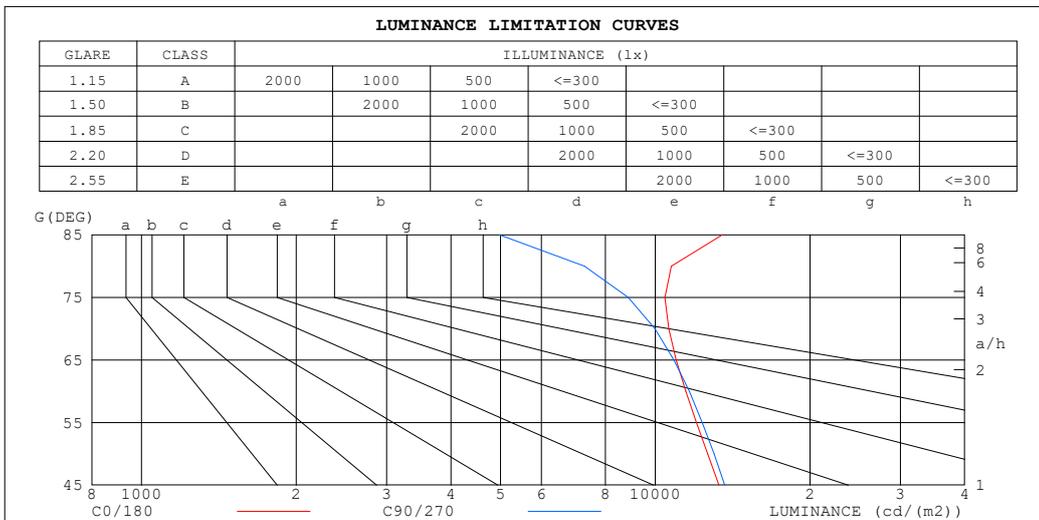
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	2191	2187	2183	2173	2169	2173	2186	2187	0- 10	210.9	210.9	3.78,3.78
20	2032	2036	2030	2000	1984	1999	2031	2035	10- 20	595.2	806.0	14.4,14.4
30	1775	1790	1785	1731	1695	1731	1787	1790	20- 30	874.1	1680	30.1,30.1
40	1449	1473	1476	1399	1345	1400	1475	1477	30- 40	1003	2683	48.1,48.1
50	1101	1125	1132	1056	993.4	1060	1130	1137	40- 50	976.3	3659	65.5,65.5
60	776.2	791.6	787.7	730.1	683.2	736.2	787.1	802.4	50- 60	827.7	4487	80.4,80.4
70	491.8	491.0	462.3	437.9	419.7	442.2	464.6	495.6	60- 70	604.1	5091	91.2,91.2
80	252.7	226.8	171.0	190.4	206.6	194.1	172.8	228.7	70- 80	349.2	5440	97.4,97.4
90	8.922	5.875	1.805	2.892	2.038	2.148	0.8507	8.214	80- 90	114.5	5555	99.5,99.5
100	16.32	6.739	1.021	6.094	13.87	4.871	0.9415	5.413	90-100	11.07	5566	99.7,99.7
110	6.848	3.761	1.571	2.504	4.323	2.118	2.197	2.271	100-110	4.937	5571	99.8,99.8
120	4.326	2.510	2.043	2.426	2.517	2.667	2.591	2.269	110-120	2.837	5574	99.8,99.8
130	2.674	2.746	2.434	3.288	2.674	3.294	3.063	2.348	120-130	2.409	5576	99.9,99.9
140	2.674	2.745	2.594	3.286	2.752	3.295	3.534	3.287	130-140	2.309	5578	99.9,99.9
150	2.124	3.921	2.984	2.816	2.360	2.902	3.455	3.209	140-150	1.961	5580	100,100
160	2.991	4.314	3.063	3.524	1.651	1.881	3.455	2.660	150-160	1.366	5582	100,100
170	3.616	3.531	3.455	3.992	2.831	2.981	3.455	3.443	160-170	0.9314	5583	100,100
180	2.674	3.059	3.455	3.443	2.752	2.667	3.298	3.443	170-180	0.3090	5583	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz Lamp Flux:5582.96x1 lm		



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	13499	4977
80	10743	7276
75	10436	8853
70	10615	9989
65	10978	10870
60	11459	11641
55	12024	12349
50	12640	13014
45	13302	13655

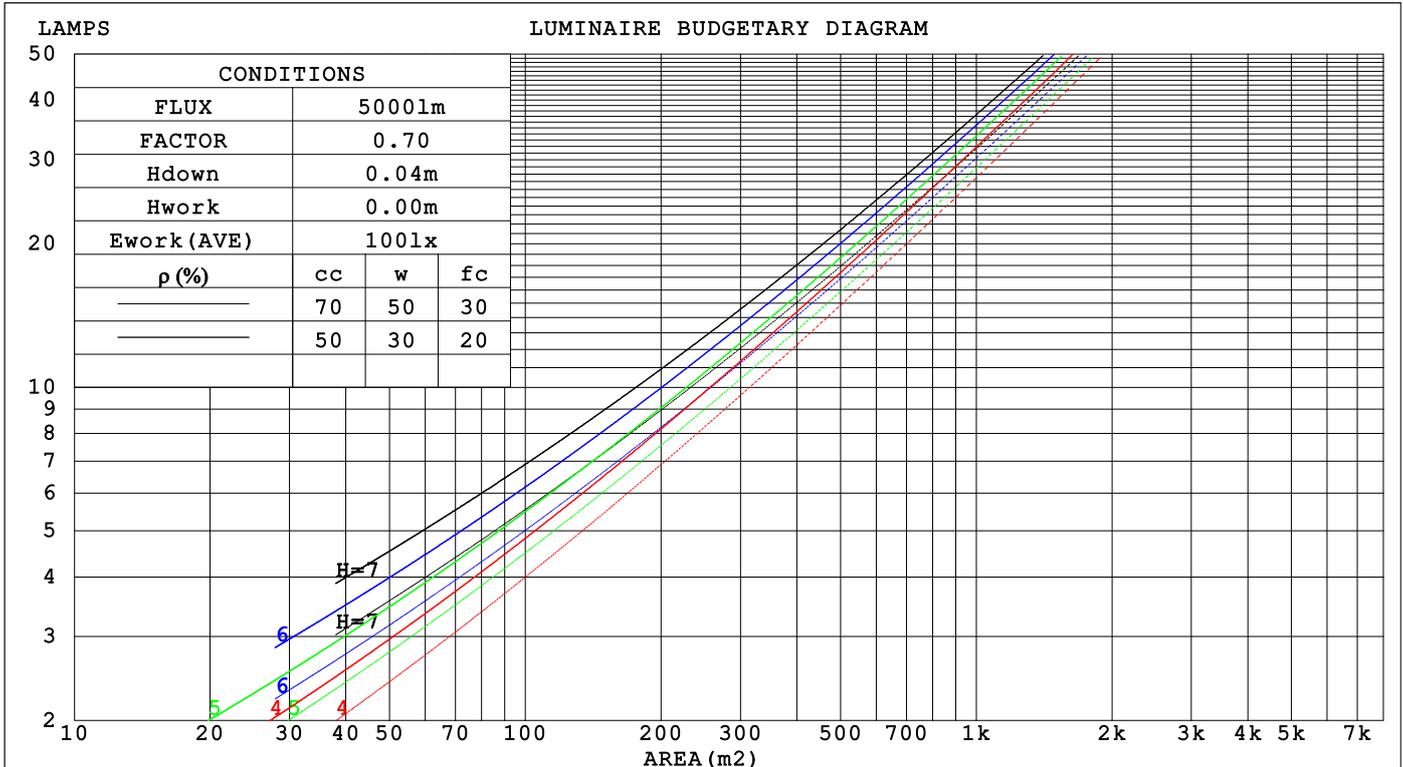
C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz																
Lamp Flux:5582.96x1 lm																

ρcc	80%			70%			50%			30%			10%			0
	ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio Coefficients of Utilization(CU)															
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.99
1.0	1.04	1.00	.96	1.02	.98	.95	.98	.94	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.91	.85	.79	.89	.83	.78	.86	.81	.76	.82	.78	.74	.79	.76	.73	.70
3.0	.81	.73	.66	.79	.72	.66	.76	.70	.64	.73	.68	.63	.71	.66	.62	.60
4.0	.72	.63	.57	.70	.62	.56	.68	.61	.55	.65	.59	.55	.63	.58	.54	.52
5.0	.64	.56	.49	.63	.55	.49	.61	.54	.48	.59	.53	.48	.57	.52	.47	.45
6.0	.58	.49	.43	.57	.49	.43	.55	.48	.42	.54	.47	.42	.52	.46	.42	.40
7.0	.53	.44	.38	.52	.44	.38	.50	.43	.38	.49	.42	.37	.48	.42	.37	.35
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.38	.34	.44	.38	.33	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.36	.31	.42	.35	.30	.41	.35	.30	.28
10.0	.41	.33	.28	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.28	.26



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

WEC AND CCEC

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz																
Lamp Flux:5582.96x1 lm																

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.301	.171	.054	.294	.168	.053	.280	.161	.051	.268	.154	.050	.256	.149	.048	
2.0	.282	.155	.047	.276	.152	.047	.264	.147	.046	.253	.142	.044	.243	.137	.043	
3.0	.261	.139	.042	.256	.137	.041	.245	.133	.040	.236	.129	.040	.227	.125	.039	
4.0	.242	.126	.037	.237	.124	.037	.227	.121	.036	.219	.117	.035	.211	.115	.035	
5.0	.224	.114	.033	.219	.113	.033	.211	.110	.032	.203	.107	.032	.196	.105	.032	
6.0	.208	.104	.030	.204	.103	.030	.197	.101	.029	.190	.099	.029	.183	.097	.029	
7.0	.194	.096	.027	.190	.095	.027	.184	.093	.027	.178	.091	.027	.172	.089	.026	
8.0	.181	.089	.025	.178	.088	.025	.172	.086	.025	.167	.085	.024	.162	.083	.024	
9.0	.170	.082	.023	.167	.082	.023	.162	.080	.023	.157	.079	.023	.152	.077	.022	
10.0	.160	.077	.021	.158	.076	.021	.153	.075	.021	.148	.074	.021	.144	.073	.021	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0																
1.0	.194	.194	.194	.166	.166	.166	.113	.113	.113	.065	.065	.065	.021	.021	.021	
2.0	.184	.160	.139	.157	.137	.120	.107	.095	.083	.062	.055	.048	.020	.018	.016	
3.0	.175	.136	.103	.150	.117	.089	.103	.081	.062	.059	.047	.036	.019	.015	.012	
4.0	.167	.118	.079	.143	.102	.069	.098	.071	.048	.057	.041	.028	.018	.013	.009	
5.0	.159	.105	.063	.136	.091	.055	.094	.063	.039	.054	.037	.023	.017	.012	.008	
6.0	.151	.094	.052	.130	.082	.045	.090	.057	.032	.052	.033	.019	.017	.011	.006	
7.0	.144	.086	.044	.124	.074	.038	.086	.052	.027	.050	.031	.016	.016	.010	.005	
8.0	.138	.079	.038	.118	.068	.033	.082	.048	.023	.047	.028	.014	.015	.009	.005	
9.0	.131	.073	.033	.113	.063	.029	.078	.045	.021	.045	.026	.012	.015	.009	.004	
10.0	.125	.068	.030	.108	.059	.026	.075	.042	.018	.044	.025	.011	.014	.008	.004	
10.0	.120	.064	.027	.103	.055	.023	.072	.039	.017	.042	.023	.010	.014	.008	.003	

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz Lamp Flux:5582.96x1 lm										
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	15.4	16.8	15.6	17.0	17.3	15.4	16.9	15.7	17.1	17.3
3H	16.8	18.2	17.1	18.4	18.6	16.8	18.1	17.1	18.4	18.6
4H	17.4	18.7	17.7	19.0	19.2	17.3	18.6	17.6	18.8	19.1
6H	18.0	19.2	18.3	19.5	19.8	17.5	18.8	17.9	19.0	19.3
8H	18.4	19.5	18.7	19.8	20.1	17.6	18.8	17.9	19.0	19.3
12H	18.6	19.7	19.0	20.0	20.4	17.6	18.7	17.9	19.0	19.3
4H 2H	15.9	17.2	16.3	17.5	17.8	16.0	17.3	16.3	17.6	17.8
3H	17.6	18.7	17.9	19.0	19.3	17.5	18.7	17.9	19.0	19.3
4H	18.3	19.4	18.7	19.7	20.0	18.1	19.2	18.5	19.5	19.8
6H	19.1	20.0	19.5	20.3	20.7	18.6	19.5	19.0	19.8	20.2
8H	19.5	20.4	19.9	20.7	21.1	18.6	19.5	19.1	19.9	20.3
12H	19.8	20.6	20.3	21.0	21.4	18.7	19.5	19.1	19.9	20.3
8H 4H	18.6	19.4	19.0	19.8	20.2	18.4	19.3	18.8	19.6	20.0
6H	19.5	20.2	20.0	20.7	21.1	19.0	19.7	19.4	20.1	20.6
8H	20.1	20.7	20.6	21.2	21.6	19.2	19.8	19.6	20.2	20.7
12H	20.5	21.1	21.0	21.5	22.0	19.3	19.8	19.8	20.3	20.8
12H 4H	18.6	19.4	19.0	19.8	20.2	18.5	19.2	18.9	19.6	20.0
6H	19.6	20.2	20.1	20.7	21.1	19.1	19.7	19.6	20.2	20.6
8H	20.2	20.8	20.7	21.2	21.7	19.3	19.9	19.8	20.3	20.8
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.1 / - 0.3				
2.0H	+ 0.1 / - 0.2					+ 0.3 / - 0.4				

CIE Pub.117, 5583 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 6.0)
 Area: 0.1354 m2

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz Lamp Flux:5582.96x1 lm										

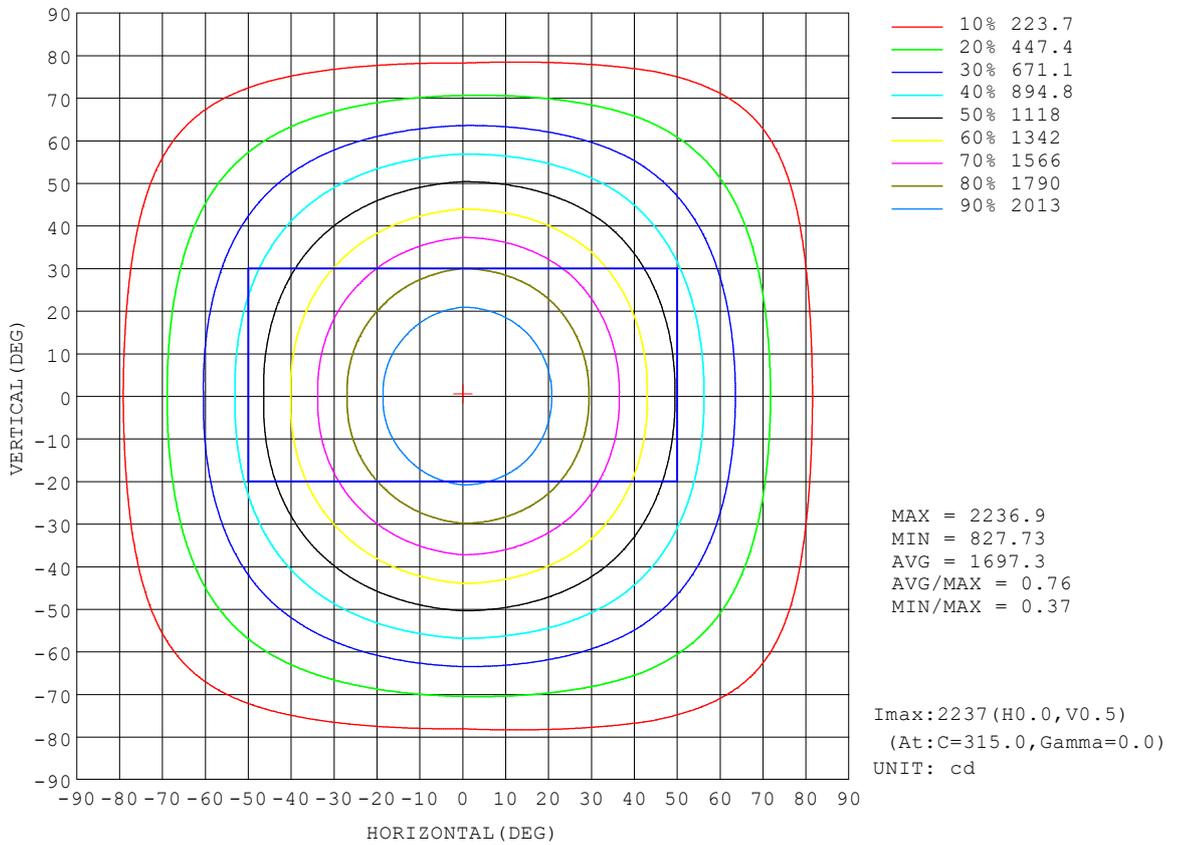
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	60	48	42	59	48	41	58	48	41	35
0.80	69	58	51	68	58	51	67	57	51	44
1.00	78	67	60	76	66	60	74	68	59	52
1.25	85	74	68	83	74	67	80	72	66	59
1.50	89	80	73	88	79	73	85	77	71	64
2.00	96	88	81	94	86	81	91	84	79	71
2.50	100	92	86	98	91	85	94	88	83	75
3.00	103	96	91	101	95	90	97	92	87	79
4.00	107	101	97	104	99	95	100	96	92	84
5.00	109	104	100	106	102	99	102	99	96	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz Lamp Flux:5582.96x1 lm		



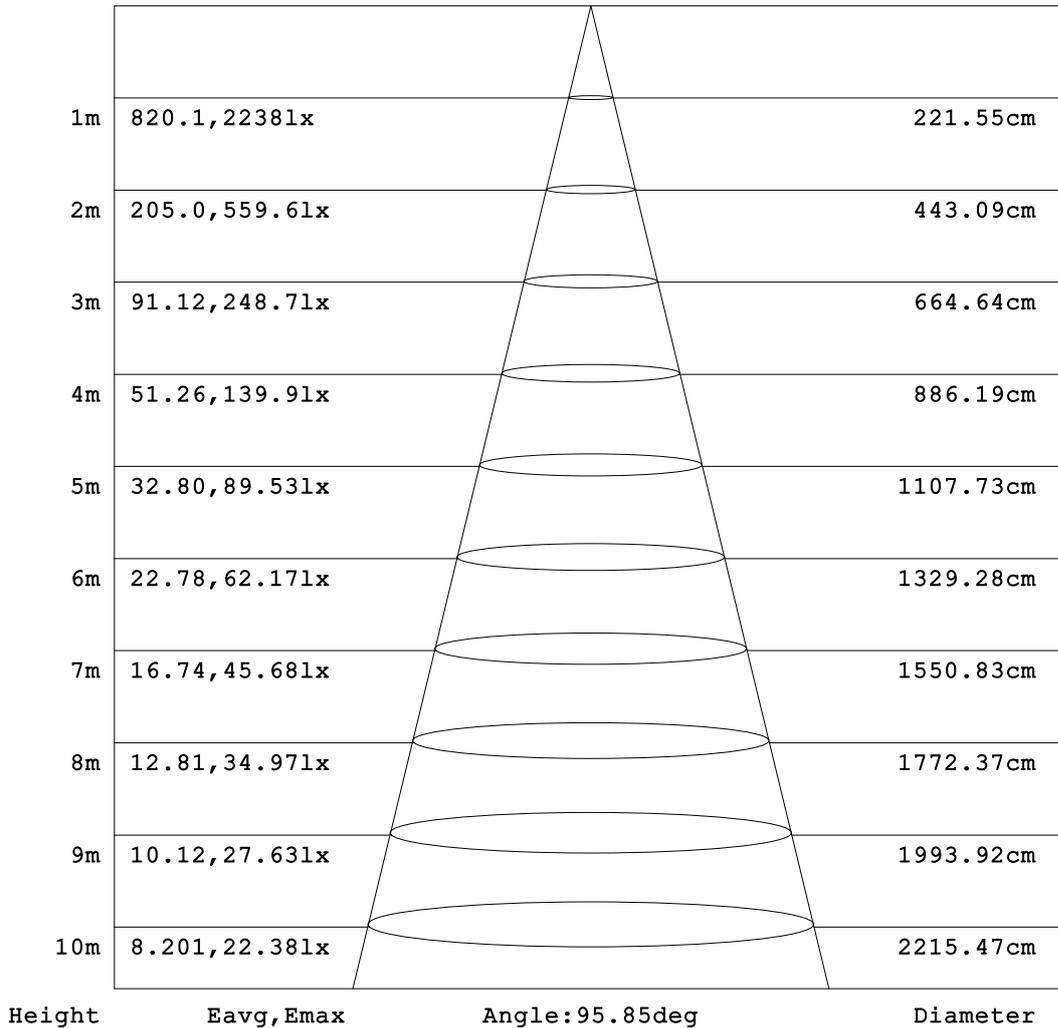
C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators: DAMIN
 Test Date: 2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity: 65.0%
 Test Distance: 26.000m [K=1.2780]
 Remarks:

AAI Figure

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz		
Lamp Flux:5582.96x1 lm		

Flux out:3659 lm



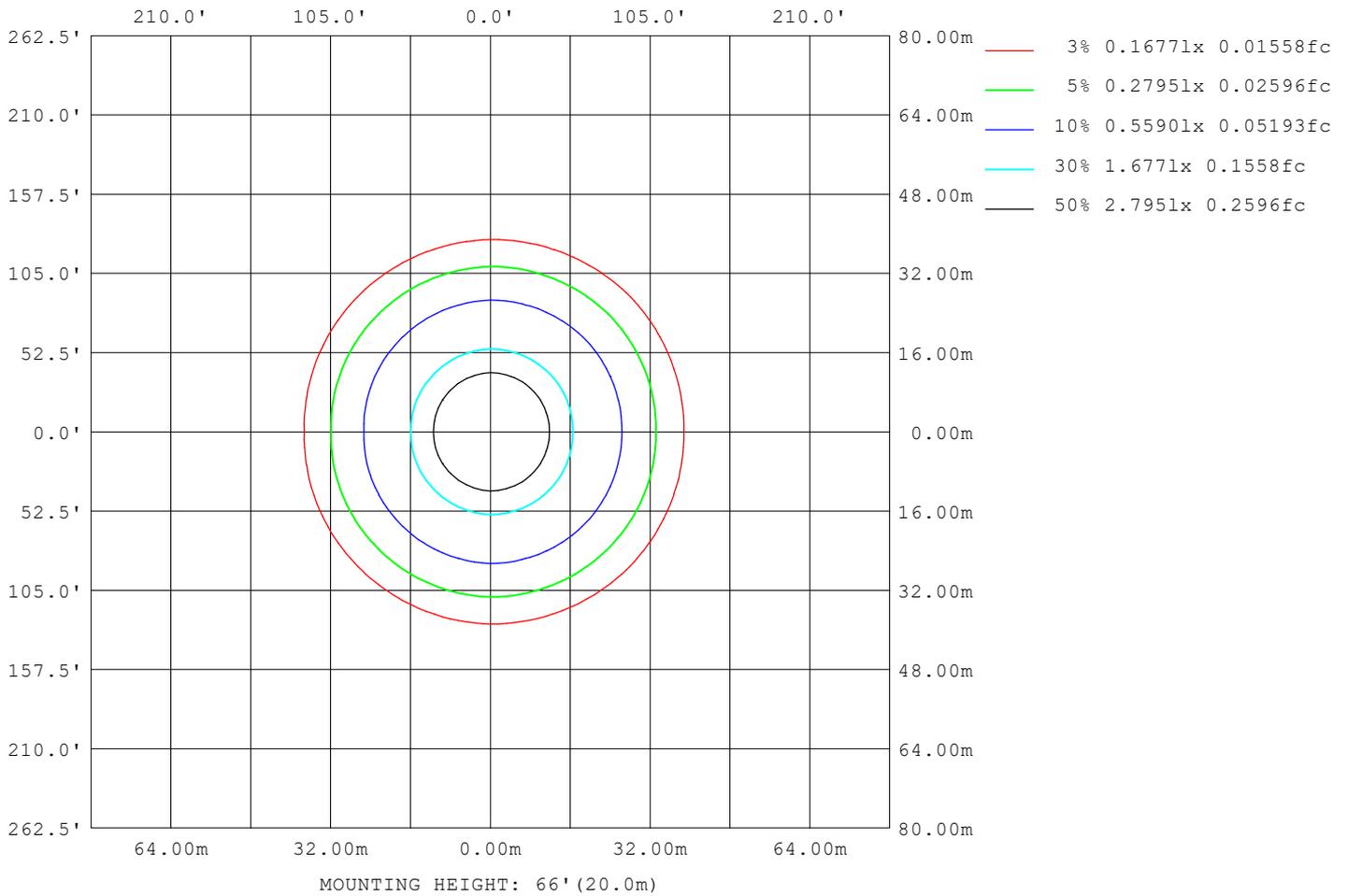
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators: DAMIN
 Test Date: 2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity: 65.0%
 Test Distance: 26.000m [K=1.2780]
 Remarks:

ISOLUX DIAGRAM

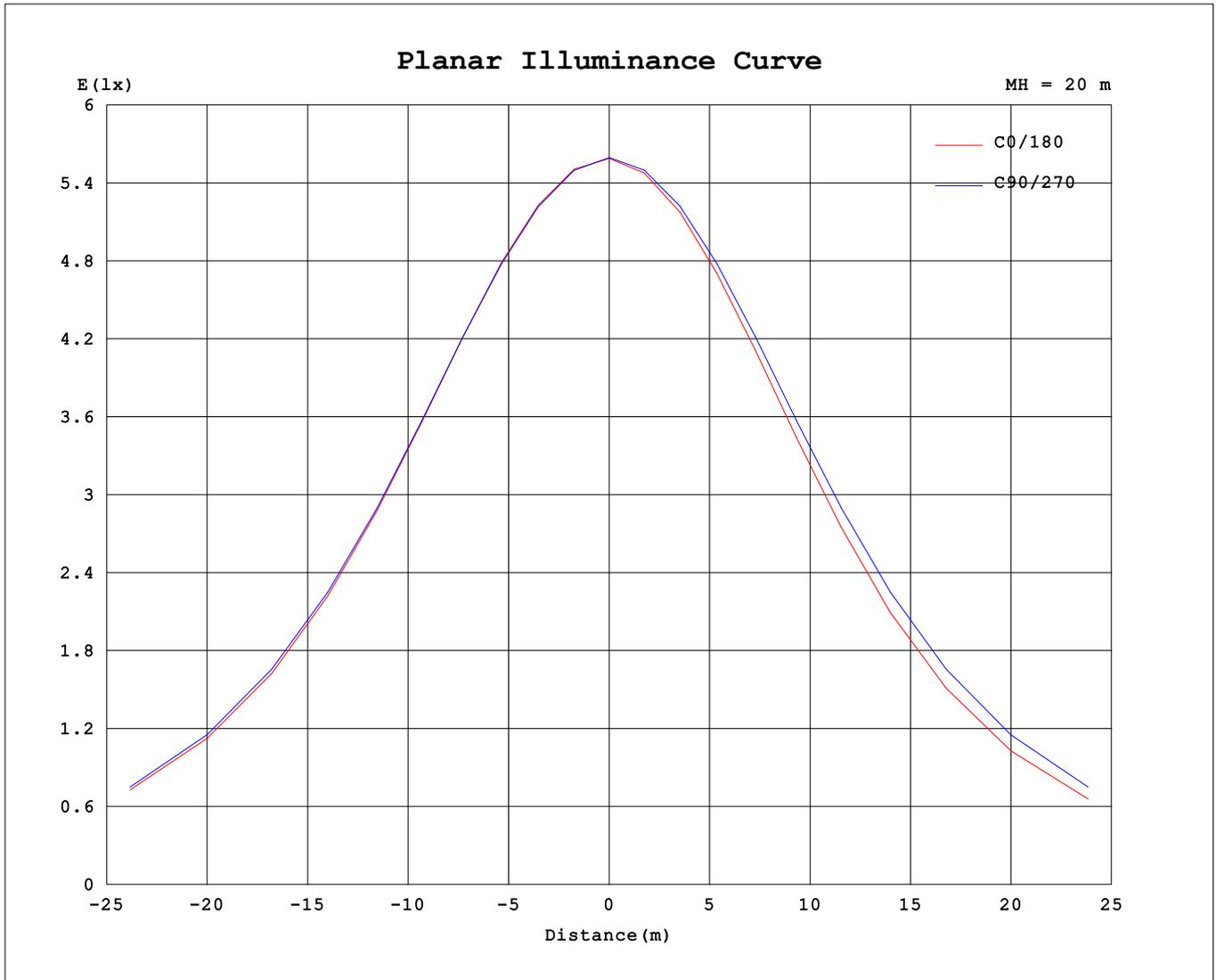
Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz Lamp Flux:5582.96x1 lm		



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators: DAMIN
 Test Date: 2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity: 65.0%
 Test Distance: 26.000m [K=1.2780]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:276.81V I:0.1755A P:47.298W PF:0.9735 Freq:60.01Hz		
Lamp Flux:5582.96x1 lm		

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	45	90	135	180	225	270	315											
0	2237	2237	2237	2237	2237	2237	2237	2237											
5	2228	2226	2223	2219	2217	2219	2224	2227											
10	2191	2187	2183	2173	2169	2173	2186	2187											
15	2126	2124	2119	2099	2091	2099	2121	2123											
20	2032	2036	2030	2000	1984	1999	2031	2035											
25	1914	1923	1918	1876	1850	1875	1919	1922											
30	1775	1790	1785	1731	1695	1731	1787	1790											
35	1618	1638	1637	1569	1524	1571	1638	1639											
40	1449	1473	1476	1399	1345	1400	1475	1477											
45	1274	1300	1307	1227	1166	1229	1304	1309											
50	1101	1125	1132	1056	993	1060	1130	1137											
55	934	955	958	889	832	895	956	967											
60	776	792	788	730	683	736	787	802											
65	628	637	622	579	545	585	622	644											
70	492	491	462	438	420	442	465	496											
75	366	353	310	307	306	310	313	355											
80	253	227	171	190	207	194	173	229											
85	159	122	58.7	95.5	127	100	59.7	122											
90	8.92	5.87	1.81	2.89	2.04	2.15	0.85	8.21											
95	36.2	14.7	1.18	11.6	28.4	11.0	0.63	14.6											
100	16.3	6.74	1.02	6.09	13.9	4.87	0.94	5.41											
105	9.68	4.70	1.02	3.52	8.09	2.28	1.57	3.21											
110	6.85	3.76	1.57	2.50	4.32	2.12	2.20	2.27											
115	5.51	2.82	1.96	2.43	2.52	2.43	2.43	2.11											
120	4.33	2.51	2.04	2.43	2.52	2.67	2.59	2.27											
125	2.84	2.51	2.43	2.59	2.59	3.06	2.75	2.27											
130	2.67	2.75	2.43	3.29	2.67	3.29	3.06	2.35											
135	2.67	3.29	2.51	3.68	2.75	3.29	3.61	2.58											
140	2.67	2.75	2.59	3.29	2.75	3.29	3.53	3.29											
145	2.98	3.38	2.83	3.76	2.75	3.29	3.53	3.44											
150	2.12	3.92	2.98	2.82	2.36	2.90	3.46	3.21											
155	3.29	4.31	3.06	3.06	1.89	2.28	3.30	2.35											
160	2.99	4.31	3.06	3.52	1.65	1.88	3.45	2.66											
165	3.46	4.31	3.30	3.91	2.83	2.74	3.46	3.44											
170	3.62	3.53	3.46	3.99	2.83	2.98	3.46	3.44											
175	2.68	3.06	3.46	3.60	2.75	2.67	3.46	3.44											
180	2.67	3.06	3.46	3.44	2.75	2.67	3.30	3.44											

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3°C
 Operators:DAMIN
 Test Date:2023-12-07

γ Range: 0 - 180DEG
 γ Interval: 5.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.464
 Humidity:65.0%
 Test Distance:26.000m [K=1.2780]
 Remarks: